

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
23 March 2006 (23.03.2006)

PCT

(10) International Publication Number
WO 2006/031011 A1

(51) International Patent Classification⁷: C10G 1/00

(21) International Application Number:
PCT/KR2005/001808

(22) International Filing Date: 14 June 2005 (14.06.2005)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
10-2004-0061657 5 August 2004 (05.08.2004) KR

(71) Applicant (for all designated States except US): KOREA
INSTITUTE OF ENERGY RESEARCH [KR/KR];
71-2, Jang-dong, Yuseong-gu, Daejeon 305-343 (KR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): KANG, Sung-Kyu
[KR/KR]; 9-103, Townhouse, 391, Doryong-dong,
Yuseong-gu, Daejeon 305-340 (KR). SHIN, Hyun-Dong
[KR/KR]; 61-7, Samsung-dong, Kangnam-gu, Seoul
135-090 (KR).

(74) Agent: HONG, Sung-Chul; RM703, Newseoul Bldg.,
828-8, Yeoksam-dong, Kangnam-gu, Seoul 135-080 (KR).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KM, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM,
PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM,
SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN,
YU, ZA, ZM, ZW.

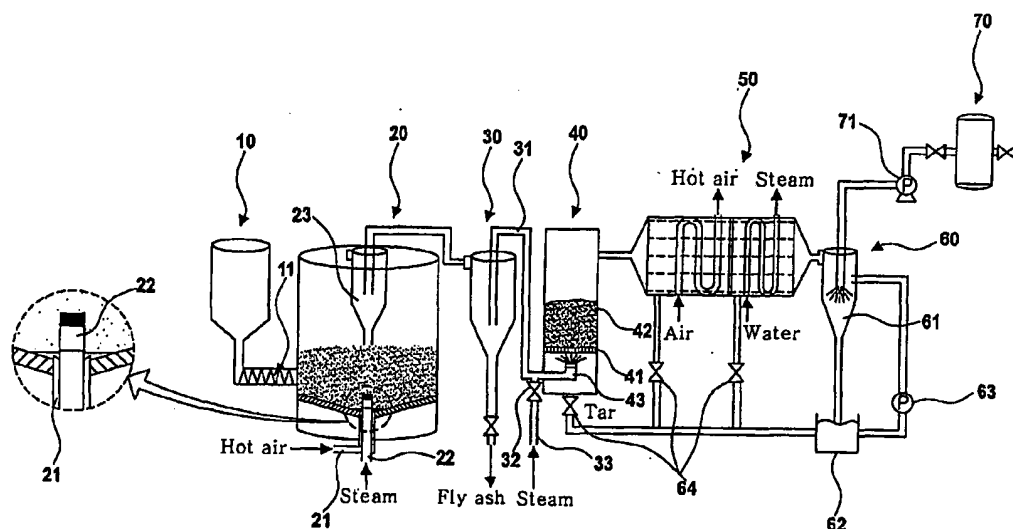
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,
SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS OF CATALYTIC GASIFICATION FOR REFINED BIOMASS FUEL AT LOW TEMPERATURE AND
THE METHOD THEREOF



(57) Abstract: Disclosed is a gasification technique for converting biomass, which is difficult to treat, into clean gas fuel able to be burned in a cogeneration system. The gasification technique includes first stage fluidized-bed catalytic gasification, and second stage gasification of tar and catalytic reforming to convert nitrogen in tar, and HCN in a flammable gas into NH₃, unlike conventional gasification techniques. In addition, since the temperature of a total gasification process is lower than a melting point of ash, powdery ash is generated and thus easily treated. Also, little heat is released due to the low process temperature, and therefore, a compact reactor may be designed to produce gas having a high calorific value. Further, the generated tar is recovered and reused in other processes, and the gas fuel contains a small amount of ammonia.

WO 2006/031011 A1